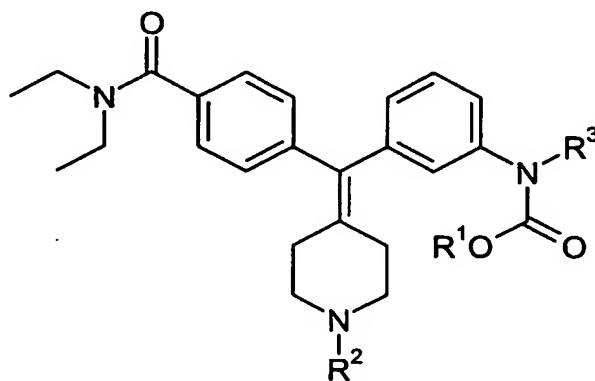


**What is claimed is :**

1. A compound of formula I, a pharmaceutically acceptable salt thereof, diastereomers, enantiomers, or mixtures thereof:

**I**

wherein

- $R^1$  and  $R^3$  are, independently, selected from hydrogen,  $C_{1-6}$ alkyl, and  $C_{3-6}$ cycloalkyl, wherein said  $C_{1-6}$ alkyl and  $C_{3-6}$ cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or  $C_{1-6}$ alkyl; and

- $R^2$  is selected from  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl, wherein said  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen,  $C_{3-6}$ cycloalkyl or  $C_{1-6}$ alkyl.

2. A compound according to claim 1, wherein  $R^1$  is  $C_{1-3}$ alkyl;  $R^3$  is hydrogen; and

R<sup>2</sup> is selected from C<sub>1-6</sub>alkyl and C<sub>3-6</sub>cycloalkyl-methyl, wherein said C<sub>1-6</sub>alkyl and C<sub>3-6</sub>cycloalkyl-methyl are optionally substituted with one or more groups selected from methoxy, ethoxy and isopropoxy.

- 5     3.     A compound according to claim 1,  
         wherein R<sup>1</sup> is selected from C<sub>1-3</sub>alkyl and halogenated C<sub>1-3</sub>alkyl;  
         R<sup>3</sup> is selected from hydrogen, C<sub>1-6</sub>alkyl, and C<sub>3-6</sub>cycloalkyl, wherein said  
         C<sub>1-6</sub>alkyl and C<sub>3-6</sub>cycloalkyl are optionally substituted with one or more groups  
         selected from C<sub>1-6</sub>alkyl, halogenated C<sub>1-6</sub>alkyl, -NO<sub>2</sub>, -CF<sub>3</sub>, C<sub>1-6</sub>alkoxy, chloro,  
10     fluoro, bromo, and iodo; and  
         R<sup>2</sup> is selected from C<sub>1-6</sub>alkyl, C<sub>3-6</sub>cycloalkyl and C<sub>3-6</sub>cycloalkyl-methyl,  
         wherein said C<sub>1-6</sub>alkyl, C<sub>3-6</sub>cycloalkyl and C<sub>3-6</sub>cycloalkyl-methyl are optionally  
         substituted with one or more groups selected from C<sub>1-6</sub>alkyl, halogenated C<sub>1-6</sub>alkyl,  
         -CF<sub>3</sub>, C<sub>1-6</sub>alkoxy, chloro, fluoro and bromo.  
15
4.     A compound according to claim 1,  
         wherein R<sup>1</sup> is selected from methyl and ethyl;  
         R<sup>3</sup> is hydrogen; and  
         R<sup>2</sup> is selected from n-propyl, cyclopropylmethyl, n-pentyl, 2-methoxyethyl,  
20     n-butyl, 2-isopropoxyethyl, 2-ethoxyethyl, 3-methoxypropyl, cyclobutylmethyl,  
         methyl, and ethyl.
5.     A compound according to claim 1, wherein the compound is selected from:  
COMPOUND 1: methyl [3-[[4-[(diethylamino)carbonyl]phenyl](1-propyl-4-  
25     piperidinylidene)methyl]phenyl]carbamate;  
COMPOUND 2: methyl [3-[[1-(cyclopropylmethyl)-4-piperidinylidene][4-  
         [(diethylamino)carbonyl]phenyl]methyl]phenyl]carbamate;  
COMPOUND 3: methyl [3-[[4-[(diethylamino)carbonyl]phenyl](1-pentyl-4-  
         piperidinylidene)methyl]phenyl]carbamate;  
30     COMPOUND 4: ethyl [3-[[4-[(diethylamino)carbonyl]phenyl](1-propyl-4-  
         piperidinylidene)methyl]phenyl]carbamate;

COMPOUND 5: ethyl [3-[[4-[(diethylamino)carbonyl]phenyl][1-(2-methoxyethyl)-4-piperidinyldene]methyl]phenyl]carbamate;

COMPOUND 6: ethyl [3-[(1-butyl-4-piperidinyldene)[4-[(diethylamino)carbonyl]phenyl]methyl]phenyl]carbamate;

5 COMPOUND 7: [3-[[4-[(diethylamino)carbonyl]phenyl][1-[2-(1-methylethoxy)ethyl]-4-piperidinyldene]methyl]phenyl]- carbamic acid, methyl ester;

COMPOUND 8: [3-[[4-[(diethylamino)carbonyl]phenyl][1-(2-ethoxyethyl)-4-piperidinyldene]methyl]phenyl]- carbamic acid, methyl ester;

10 COMPOUND 9: methyl 3-((1-butylpiperidin-4-ylidene){4-[(diethylamino)carbonyl]phenyl}methyl)phenylcarbamate;

COMPOUND 10: methyl 3-{4-[(diethylamino)carbonyl]phenyl}[1-(3-methoxypropyl)piperidin-4-ylidene]methyl}phenylcarbamate;

COMPOUND 11: methyl 3-([1-(cyclobutylmethyl)piperidin-4-ylidene]{4-[(diethylamino)carbonyl]phenyl}methyl)phenylcarbamate;

15 COMPOUND 12: methyl 3-{4-[(diethylamino)carbonyl]phenyl}(1-methylpiperidin-4-ylidene)methyl}phenylcarbamate;

COMPOUND 13: methyl 3-{4-[(diethylamino)carbonyl]phenyl}(1-ethylpiperidin-4-ylidene)methyl}phenylcarbamate;

20 COMPOUND 14: ethyl 3-([1-(cyclopropylmethyl)piperidin-4-ylidene]{4-[(diethylamino)carbonyl]phenyl}methyl)phenylcarbamate;

COMPOUND 15: ethyl {3-{4-[(diethylamino)carbonyl]phenyl}(1-methylpiperidin-4-ylidene)methyl}phenyl}carbamate;

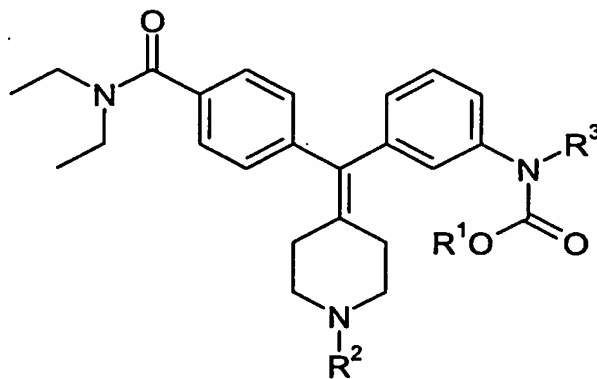
COMPOUND 16: ethyl {3-[[4-(aminocarbonyl)phenyl](1-ethylpiperidin-4-ylidene)methyl]phenyl}carbamate;

25 COMPOUND 17: [3-[[4-[(diethylamino)carbonyl]phenyl][1-(2-methoxyethyl)-4-piperidinyldene]methyl]phenyl]- carbamic acid, methyl ester;

and pharmaceutically acceptable salts thereof.

6. A compound according to any one of claims 1-5 for use as a medicament.

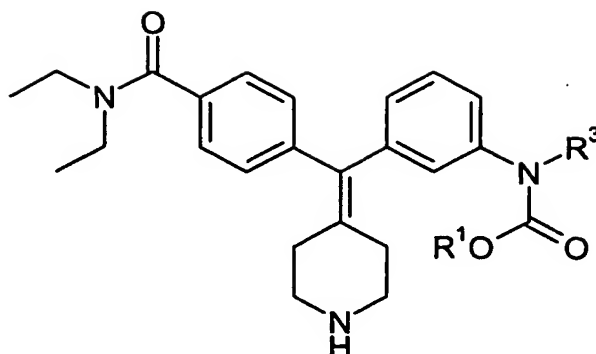
7. The use of a compound according to any one of claims 1-5 in the manufacture of a medicament for the therapy of pain, anxiety or functional gastrointestinal disorders.
- 5 8. A pharmaceutical composition comprising a compound according to any one of claims 1-5 and a pharmaceutically acceptable carrier.
9. A method for the therapy of pain in a warm-blooded animal, comprising the step of administering to said animal in need of such therapy a therapeutically effective
- 10 amount of a compound according to any one of claims 1-5.
10. A method for the therapy of functional gastrointestinal disorders in a warm-blooded animal, comprising the step of administering to said animal in need of such therapy a therapeutically effective amount of a compound according to any one of
- 15 claims 1-5.
11. A process for preparing a compound of formula I, comprising:



I

- 20 reacting a compound of formula II with R<sup>2</sup>-X:

57

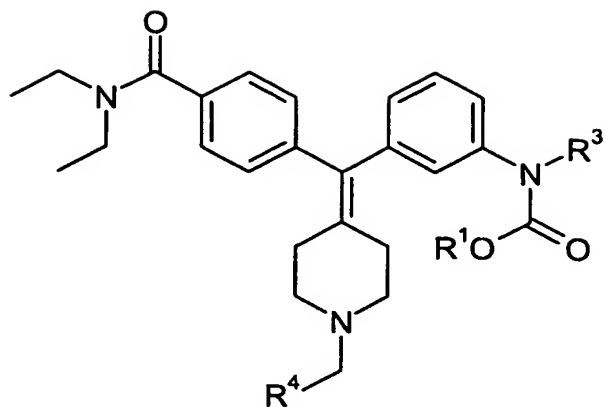
II

wherein X is halogen;

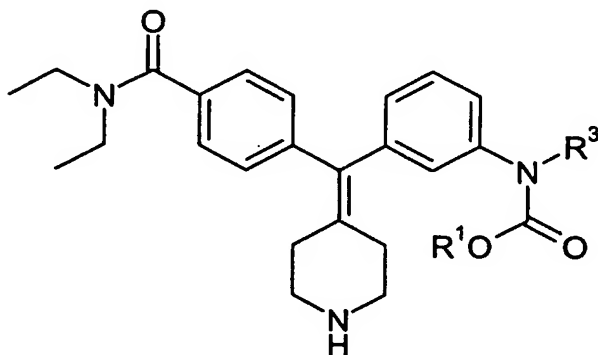
- $R^1$  and  $R^3$  are, independently, selected from hydrogen,  $C_{1-6}$ alkyl, and  $C_{3-6}$ cycloalkyl, wherein said  $C_{1-6}$ alkyl and  $C_{3-6}$ cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or  $C_{1-6}$ alkyl; and
- $R^2$  is selected from  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl, wherein said  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or  $C_{1-6}$ alkyl.

12. A process for preparing a compound of formula III, comprising:

58

III

reacting a compound of formula II with  $R^4$ -CHO:

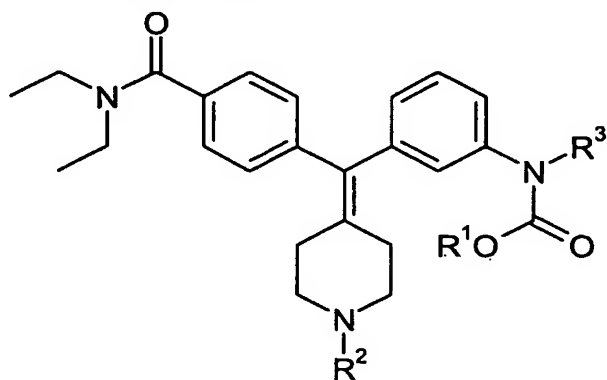
II

wherein  $R^1$  and  $R^3$  are, independently, selected from hydrogen,  $C_{1-6}$ alkyl, and  $C_{3-6}$ cycloalkyl, wherein said  $C_{1-6}$ alkyl and  $C_{3-6}$ cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or  $C_{1-6}$ alkyl; and

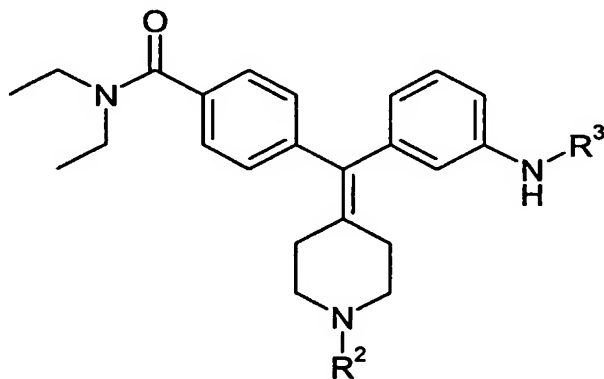
$R^4$  is selected from  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl, wherein said  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR,

-SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl.

13. A process for preparing a compound of formula I, comprising:

**I**

reacting a compound of formula IV with R<sup>1</sup>O-C(=O)-X:

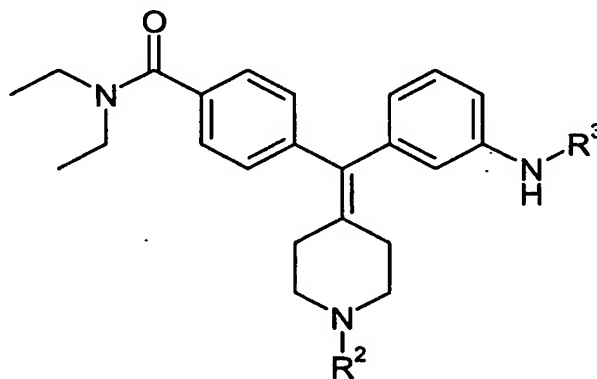
**IV**

wherein X is halogen;

R<sup>1</sup> and R<sup>3</sup> are, independently, selected from hydrogen, C<sub>1-6</sub>alkyl, and C<sub>3-6</sub>cycloalkyl, wherein said C<sub>1-6</sub>alkyl and C<sub>3-6</sub>cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl; and

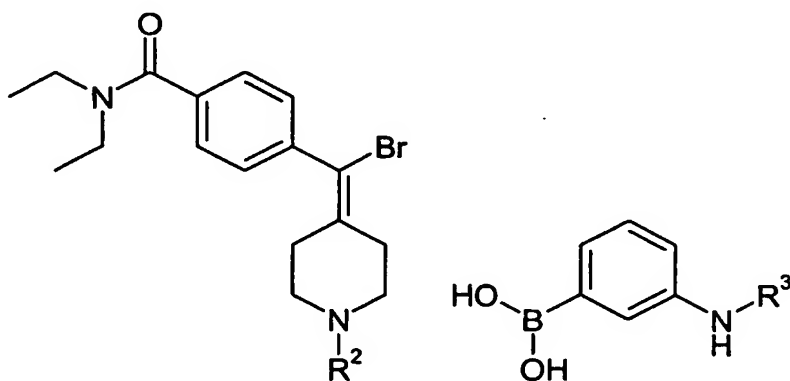
$R^2$  is selected from  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl, wherein said  $C_{1-6}$ alkyl,  $C_{2-6}$ alkenyl,  $C_{3-6}$ cycloalkyl, and  $C_{3-6}$ cycloalkyl- $C_{1-4}$ alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or  $C_{1-6}$ alkyl.

14. A process for preparing a compound of formula IV, comprising:



IV

reacting a compound of formula V with a compound of formula VI or esters thereof:



V

VI

wherein  $R^3$  is selected from hydrogen,  $C_{1-6}$ alkyl, and  $C_{3-6}$ cycloalkyl, wherein said  $C_{1-6}$ alkyl and  $C_{3-6}$ cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH,

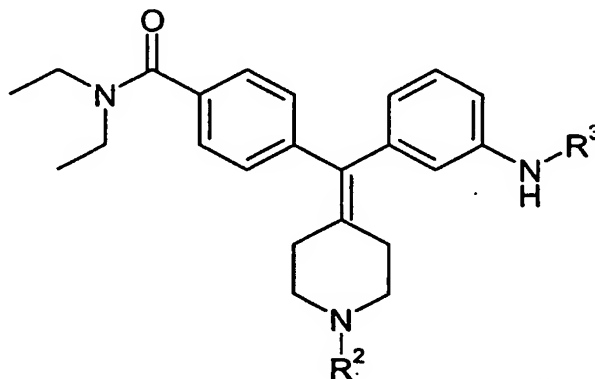


-NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl; and

R<sup>2</sup> is selected from C<sub>1-6</sub>alkyl, C<sub>2-6</sub>alkenyl, C<sub>3-6</sub>cycloalkyl, and C<sub>3-6</sub>cycloalkyl-C<sub>1-4</sub>alkyl, wherein said C<sub>1-6</sub>alkyl, C<sub>2-6</sub>alkenyl, C<sub>3-6</sub>cycloalkyl, and C<sub>3-6</sub>cycloalkyl-C<sub>1-4</sub>alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl.

10

15. A compound of formula IV, a pharmaceutically acceptable salt thereof, diastereomers, enantiomers, or mixtures thereof:

IV

15 wherein R<sup>3</sup> is selected from hydrogen, C<sub>1-6</sub>alkyl, and C<sub>3-6</sub>cycloalkyl, wherein said C<sub>1-6</sub>alkyl and C<sub>3-6</sub>cycloalkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR, -SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl; and

20

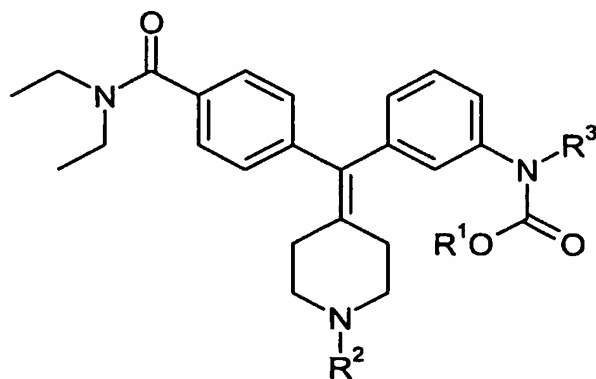
R<sup>2</sup> is selected from C<sub>1-6</sub>alkyl, C<sub>2-6</sub>alkenyl, C<sub>3-6</sub>cycloalkyl, and C<sub>3-6</sub>cycloalkyl-C<sub>1-4</sub>alkyl, wherein said C<sub>1-6</sub>alkyl, C<sub>2-6</sub>alkenyl, C<sub>3-6</sub>cycloalkyl, and C<sub>3-6</sub>cycloalkyl-C<sub>1-4</sub>alkyl are optionally substituted with one or more groups selected from -R, -NO<sub>2</sub>, -OR, -Cl, -Br, -I, -F, -CF<sub>3</sub>, -C(=O)R, -C(=O)OH, -NH<sub>2</sub>, -SH, -NHR, -NR<sub>2</sub>, -SR,

-SO<sub>3</sub>H, -SO<sub>2</sub>R, -S(=O)R, -CN, -OH, -C(=O)OR, -C(=O)NR<sub>2</sub>, -NRC(=O)R, and -NRC(=O)-OR, wherein R is, independently, a hydrogen or C<sub>1-6</sub>alkyl.

16. A compound as claimed in claim 15, wherein the compound is selected from  
 5 4-[(3-aminophenyl)[1-(2-methoxyethyl)-4-piperidinylidene]methyl]-*N,N*-diethylbenzamide and pharmaceutically acceptable salts thereof.

17. A compound selected from:  
 [3-[[4-[(diethylamino)carbonyl]phenyl][1-(2-ethoxyethyl)-4-  
 10 piperidinylidene]methyl]phenyl]- carbamic acid, methyl ester;  
 methyl 3-{{4-[(diethylamino)carbonyl]phenyl}[1-(3-methoxypropyl)piperidin-4-ylidene]methyl} phenylcarbamate;  
 [3-[[4-[(diethylamino)carbonyl]phenyl][1-(2-methoxyethyl)-4-  
 piperidinylidene]methyl]phenyl]- carbamic acid, methyl ester; and pharmaceutically  
 15 acceptable salts thereof.

18. A compound of formula I or pharmaceutically acceptable salts thereof,



20

I

wherein R<sup>3</sup> is hydrogen, R<sup>1</sup> is selected from methyl and ethyl; and R<sup>2</sup> is C<sub>1-3</sub>alkoxy-C<sub>1-4</sub>alkyl.